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JANUARY 1993

Weather

January's storms followed a grooved track that began over the Sierra of California, and then spread inland to bring heavy snows to southern Idaho, Utah, Colorado, and northern New Mexico. Following December's lead, January brought four storms that battered the Sierra. Snows on the 1st-2nd totalled 24-26" and were an extension of a storm that began in late December. The second storm -- this one less intense -- came on the 6th-11th. The third hit on the 13th-18th: on the 13th-14th, Sugar Bowl and June Mountain got 37" of snow, and June Mt. recorded another 40" on the 16th-18th. The final storm came on the 20th-22nd, and Sugar Bowl got 32", and Alpine Meadows, 26". On the 21st, Alpine Meadows recorded a 2-hour average wind of 125 mph and a peak gust of 176 mph, a windstorm that felled 80 trees. For the month, Alpine Meadows received 190% of normal snows, and Mammoth Mountain, 180%. Kirkwood Meadows (not on the data sheet) received 153" of snow and recorded wind gusts of 112 mph on the 12th and 115 on the 30th.

The Cascades of Oregon and Washington were north of the main storm track and got below-normal snows: Mt. Hood Meadows, 90%; Crystal Mt., 77%; Stevens Pass, 68%; and Mt. Rainier, 62%. Only one real storm hit the region: on the 20th-24th, Mt. Hood Meadows got 35"; Mt. Rainier, 39"; Crystal Mt., 41"; and Stevens Pass, 43".

In the Intermountain region, the Pacific storms brought checkered snowfalls. For example, in Montana, Big Mountain got 105% of normal while Bridger Bowl got only 58%. In Idaho, Sun Valley recorded 190% of normal, while a little further east in Wyoming, Teton Pass got 78% and Jackson Hole, 90%. Jackson Hole, though, still recorded measurable snow on 24 of the first 25 days of the month. Schweitzer Basin, ID logged 25° of new snow on the 4th.

The Wasatch of Utah got hammered. Snowbird received 126" and Alta (not on the data sheet), 152". This was Alta's second highest January snowfall of record, topped only by 168" in January 1967. On the 2nd, Alta received 27", and Snowbird, 21". Snow fell daily on the 7th-11th: the heaviest came on the 9th-11th, when Alta got 55", and Snowbird, 41". For the month, Alta was 175% of normal, and Snowbird, 165%.

In Colorado, snowfall was normal or above at all sites. The northern mountains were 100-125% of normal; the central mountains, 100-145%, though Gothic recorded 220%; and the southern mountains, 130-170%, though Purgatory received 260%. Many sites recorded daily snows on the 7th-20th. In New Mexico, Taos received 31" on the 8th-12th and wound up with 125% of normal.

In Alaska, Alyeska received 23" on the 29th and wound up with 80% of normal January snows.

Rocky Mountain Forest and Range Experiment Station

Avalanche

Seven fatal avalanche accidents occurred in January. These were:

Jan 9, Missoula, MT: Four boys, ages 12-14, were on a day hike on Mt. Jumbo on the east side of town. On their descent they triggered a hard-slab avalanche in a gully that caught three of them. The fourth boy located one who was partly buried and another who was totally buried except for one arm, and dug these out. Then they quickly found the final victim who was totally buried but with one foot out. The snow had set up so hard that the survivors found it impossible to dig without shovels. It was not until 2 hours later that rescuers dug the victim out. His head was 4 feet under the snow, and he was dead from suffocation. He was 13.

Jan 9, Cameron Pass, CO: Two parties of three skiers were on the east side of Diamond Peak. One group had climbed to the top, was fully equipped for avalanche rescue, and was proceeding cautiously. The second group was on a broad bench 800 feet below and more than 1/4 mile south of the upper group. Both groups were aware of the other. One member of the upper group triggered an avalanche that ultimately fractured 3-6 feet deep and 2,200 feet across the top of Diamond Peak. It fell 1,000 feet and caught all three of the skiers below. One was swept into a tree, broke his jaw, and was shallowly buried. Another was totally buried except for one hand. The third was totally buried beneath 4 feet of snow. The three skiers from above descended to start the rescue. They dug out the man who had a hand out and started spot-probing for the other two. Unknown to them, the victim with the broken jaw dug himself out and left to bring other rescuers. One hour later the rescuers struck the final victim with a probe. He was dead from suffocation.

Jan 12, Vail, CO: Three men left the ski area boundary to ski an area called Marvin's Bowl, located in the East Vail Chutes -- the site of two previous avalanche accidents this winter. They triggered an avalanche that caught two. One was totally buried and could not be found by the two survivors. The next morning a rescue team and dog arrived by helicopter. The dog quickly alerted, and the rescuers dug out the victim's body from 4 feet of snow -- long dead from suffocation. Later that day, the rescue beacon he had ordered by mail arrived.

Jan 13, Sunlight, CO: A 23-year-old snowboarder entered a permanently closed area, triggered an avalanche, and was totally buried except for one hand and the tip of his board. His companion failed to see the clues and left to notify the patrol. Then, mysteriously, he led the hasty team to the wrong site. When rescuers finally found the avalanche, they quickly spied the victim, but rescue came too late. He was dug out dead from 1-1/2 feet of snow after a burial of 90 minutes. Death was due to suffocation, but the victim had broken both legs in a collision with a tree.

Jan 16, Sundance, UT: A 50-year-old man was skiing with his 15-year-old nephew, when he entered a roped and signed avalanche closure. He triggered a slide that carried him 600 feet and buried him in a gully. The patrol's avalanche dog was at the vet (Murphy's law #628), so a hasty probe team responded and was at the site 25 minutes after the avalanche. They hit the victim on the first pass of a coarse probe line. He was 3 feet deep, buried 40 minutes, and dead from suffocation.

Jan 22, Breckenridge, CO: A party of three skiers left the ski area boundary in white-out conditions. They triggered a hard-slab avalanche that caught two and totally buried one. The two survivors were helpless without rescue gear. They reentered the ski area and notified the patrol. The hasty team brought a dog that alerted almost immediately. Shovelers uncovered the victim from 5 feet of snow. He had been buried an hour and was dead from suffocation. He was 18.

Jan 26, Ten Mile Canyon, CO: An ice climber was climbing unprotected when a small soft slab, or wet slab, released in the gully above the icefall. It knocked the man off the ice, and he fell 40 feet and was buried. His climbing partner followed the rope but was unable to dig in the debris without a shovel. She ran 100 yards to Interstate 70, stopped a car, and brought back several rescuers with shovels. After about 30 minutes, they uncovered the victim from 3 feet of snow. He was not breathing and had suffered multiple broken bones and severe internal injuries. Nine hours later, he died from these injuries.

There were several notable non-fatal avalanche encounters in January. In Alaska on the 8th, a convoy of trucks was passing over Atigan Pass in the Brooks Range. An avalanche hit two trucks; one was knocked off the road and rolled over. The truck was heavily damaged, but the driver escaped unhurt. In Utah, on the 1st a backcountry skier near Logan was buried but saved by his beacon; and on the 10th at Alta, a controlled avalanche hit 13 cars in a parking lot and totalled 3 of them. In Idaho, on the 22nd near Sun Valley, two avalanches struck and damaged two homes.

We saved the best for last. On the 4th at Kirkwood Meadows, CA, a 25-year-old skier triggered and was totally buried in an in-bounds avalanche. His two companions, finding no clues, notified the patrol. The hasty search team arrived with two avalanche dogs and entered the side of the debris area. The second dog alerted 30 seconds after being told to search. Shovelers dug out the victim from 2-3 feet of snow. He had been buried about 17 minutes and was just losing consciousness. He recovered with only minor injuries, and thus became only the third live recovery by a trained avalanche dog in the U.S.

A total of 35 incidents were reported in January. These caught 46 people, partly buried 10, buried 11, injured 5, and killed 7. Avalanches caught 17 vehicles and damaged 4. Two buildings were damaged. Avalanche statistics through January are 93 incidents, 120 people caught, 25 partly buried, 28 buried, 8 injured, and 17 killed; 23 vehicles caught and 7 damaged; and 3 buildings damaged.

U.S. FOREST SERVICE WESTWIDE WEATHER AND AVALANCHE NETWORK FORT COLLINS, COLORADO

JANUARY 1993 SUMMARY OF WEATHER AND SNOW CONDITIONS

				SUMP	IARY	OF W	VEATI	IER	AND S	SNO	CON	DITI	ONS								
	SNC	WFALL	W	WATER EQUIVALENT						SNOW DEPTH				ERATUR	E	WIND SPEED AND DIRECTION					
AREA	1							GE			MIN IN.		MEAN MAX DE	MEAN MIN GREES	AVG F	AVG FOR MO. MPH	6 HO PER GE 15	ODS GE	FAST HO MPH	UR	т
CENTRAL AND SOUTHERN F	ROCKY M	OUNTAINS							,				•								ŧ
ASPEN MOUNTAIN, COLO ASPEN HIGHLANDS, CO BEAR LAKE, RMMP, CO BEAVER CREEK, COLO BERTHOUD PASS, COLO BRECKENRIDGE, COLO CRESTED BUTTE, COLO GOTHIC, COLO KEYSTONE, COLO PURGATORY, COLO RED MTN PASS U.S.550 SUNLIGHT, COLO TAOS, NEW MEXICO TELLURIDE, COLO VAIL, COLO WINTER PARK 1E, COLO WINTER PARK S.A., CO WOLF CREEK, COLO	41.8 32.9 48.8 59.6 37.6 58.0 117.0 36.6 88.3 80.0 55.0 64.0 62.5 45.0 68.3	.07 8 2 .08 5 .08 7 2 .06 8 .10 10 .06 6 .08 18 1 .09 12 .08 9 1 .07 8 .07 8 .07 8	3 3.10 9 2.56 0 3.89 9 3.41 57 5.80 4 6.99 9 2.34 6.75 8 7.34 4.45 9 4.37 7 2.39 7 4.16	.55 .26 .65 .38 .60 .85 1.02 .30 1.50 1.50 1.15 .60 .55	23 21 23 23 23 8 8 9 19 8 12 9 19 7 20	10 8 13 7 12 7 14 8 111 7 114 12 115 13 115 14 115 14 115 9 116 6 110 5 116 12	1 0 4 0 1 4 7 0 6 8 3 4 3 4 0 1	0 0 0 0 0 0 0 0 1 1 0 1 1 0 0 0 0 0 0 0	74 50 44 60 51 285 75 37 82 64 56 86 55 60 39 57	23 23 21 3 17 22 19 20 14 20 20 23 21 22	43 36 26 40 31 28 40 23 47 28 41 58 33 37 25 39 65	42 35 51 42 44 60 31 64 51 49 75 44 52 33 49	27.2 25.6 25.1 24.9M 24.8 20.8 23.2 24.5 27.4 21.5 26.7 26.8 22.1 22.6 28.5 20.8 27.0M	4.7 5.9 11.7 5.2 7.1 8.9 10.6 13.0 10.1M 10.0 3.1 7.7	14.9 17.2 15.2 18.6 19.9 16.1M	4.4M 	51 50 17M 2 26M 4M 6	3 1M 0M 28 28 8M 0 4M 0M 1 2M 34M	23 20 44 36 65 19 33 28 30		22 22 25 3 23 1 22
INTERMOUNTAIN																					
BIG MOUNTAIN, MONT BRIDGER BOWL, MONT JACKSON HOLE 1, WYO SCHWEITZER BASIN, ID SNOWBIRD, UTAH	32.0 74.8 64.5		2 2.35 3 7.54 4	.70 2.15 	23		3	0 2 3	99 61 77 91 104	2 3 5	74 49 59 70 71	66 77	24.7 19.5 23.9M 30.1		16.8 15.4 17.7M 22.7		31M 74 90	10M 30 70		120 240 	
WEST COAST																					
ALYESKA, ALASKA CRYSTAL MTN 2, WASH CRYSTAL MTN 1, WASH HEAVENLY VALLEY, CAL JUNE MOUNTAIN, CALIF MAMMOTH MTN, CALIF MT. HOOD MDWS, ORE. MT. RAINIER PARADISE SNOQUALMIE PASS I 90 SQUAW VALLEY, CALIF STEVENS PASS, WASH	129.0 73.7 59.3 60.0 88.0 150.5 143.1 78.0 84.5 52.0 99.5 64.0	40 2 .11 15 2 .10 22	2 20.04 9 4.97 0 6.30 0 5.66 1 4 13.20 3 10.37 4 12.38 4 9.57 2 1 6.37	3.82 2.90 1.65 1.95 1.38 2.00 3.80 3.40	22 29 21 20 20 25 25 25 25	16 16 10 5 8 8 10 8 10 14 16 14 17 11 14 12	11 2 5 5 5 7 6 6 6 7 4	4 8 2 2 1 - 6 - 3 4 5 - 3	77 80 82	21 29 23 24 22 18 18 24 24 22 18 24	90 78 59 56 85 39 10 92 105 58 50	109 85 65 64 101 72 81 100 116 64 67 70	24.1M 31.5 23.4 9 24.7 31.9 34.3 27.3M 30.7 27.3 28.9M 32.1 24.2	20.0 14.7 14.9 19.9 11.8 16.2 13.9M 17.5 15.3	21.8 25.3 20.6M 24.1 21.3 22.2M 24.1 19.8	29.6 5.3 15.5M 15.6 11.3 17.1	61 56 85	89 0 40M 44 28 47	130 905 57 48 35 	240 0 220 230 280 	21 23 21 20 20

⁻⁻ DATA INCOMPLETE OR MISSING

M-ONE OR MORE DAYS OF RECORD MISSING-IF AVERAGE VALUE IS ENTERED, LESS THAN 10 DAYS RECORD IS MISSING IF M IS ENTERED IN WIND SPEED COLUMN, LESS THAN 37 6-HOUR PERIODS ARE MISSING GE--GREATER THAN OR EQUAL TO

U.S. FOREST SERVICE WESTWIDE WEATHER AND AVALANCHE NETWORK FORT COLLINS, COLORADO

JANUARY 1993 AVALANCHE SUMMARY

	TOTAL A V	TOTAL A V	DATE			D/ WI	OF DAYS WITH		YPE O		AVALANCHE SLABS				FRACTURE LINE HEIGHTS IN FEET			TICA				
AREA	L S THIS	L S THIS WINTER NO.	F I R S T	L A S T	MAX IN D ONE A DAY T NO. E	V A L S	L U F S	R T I F C L	T U R A L	H A R D	S O F T	W E T	L 0 0 8 E	2	GE 4 IMBE	6		500		MAX FEET	AVALS ACROSS MAJOR ACCESS ROADS NO.	
CENTRAL AND SOUTHERN ROC	KY MOUNT	RINS																				
ARAPAHOE BASIN, COLO ASPEN SNOWMASS, COLO ASPEN HIGHLANDS, COL BEAVER CREEK, COLO BERTHOUD PASS U.S.40 BERTHOUD PASS, COLO COPPER MT, COLO CRESTED BUTTE, COLO COPPER MT, COLO LOVELAND PASS U.S. 6 RED MTN PASS U.S. 6 RED MTN PASS U.S. 50 STEAMBOAT SPRNGS, CO SUNLIGHT, COLORADO TAOS, NEW MEXICO TELLURIDE, COLO URAD MINE, COLO VAIL, COLO WINTER PARK S.A., CO WOLF CREEK, COLO	46 41 97 1 7 24 15 7 41 78 11 123 3 1 30 56 18 10 7	70 41 167 2 16 46 28 20 72 133 16 123 3 5 80 82 22 14 12 75	2 1 29 8 1 14 11 1 1 2 8 13 4 7 4 7	27 24 30 29 30 30 27 28 31 29 30 22 119 13 19 26 30 28 21 22	10 9 14 12 25 10 1 29 1 22+ 7 30 5 14 2 25+ 7 12+ 9 22+ 5 22+ 27 11 2 8 1 13 14 11 9 7 7 12 3 12 3 21 14 8		100000000000000000000000000000000000000	33 40 25 1 5 1 10 6 39 0 1 65 3 1 30 48 5 9 0 26	13 1 72 0 2 23 5 1 2 78 10 58 0 0 8 13 1 7	0 8 5 0 2 U 7 4 1 0 5 11 1 0 3 3 2 1 1 1	46 333 85 0 5 24 8 3 40 58 6 110 0 1 24 51 15 9 6 32	000000000000000000000000000000000000000	0 0 7 1 0 0 0 0 0 0 2 0 2 0 0 2 0 0 0 0 0 0	41 18 36 0 5 16 15 7 38 54 4 22 1 1 15 34 12	6 8 1 0 2 2 6 2 15 14 1 8 0 1 4 4 4 0 0 0	0 2 0 0 0 0 0 0 1 6 0 0 0 0 0 1 1 1 0 0 0	43 31 44 0 4 23 12 2 34 78 6 41 17 19 18 10 4	22 0 28 0 4 12 0 10 56 4 27 0 0 3 9 15 4 0 0	0 18 0 1 2 0 0 26 0 16 0 0 5	1000 1200 400 800	0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
INTERMOUNTAIN BIG MOUNTAIN, MONT BIG SKY, MONT BRIDGER BOWL, MONT JACKSON HOLE, WYO	26 70 60 29	57 168 135 140	1 2	25 26 25 25	13 4 10 11+ 22 2 15 23	3 16 8 6	0 0 0	26 68 60 28	0 2 0 1	0 19 2 0	25 51 58 29	0 0 0	1 0 0	3 17 16 19	0 3 0 0	0 0 0	5 68 53 29	0 58 43 25	15	450 1200 1100 1300	0 0 0 0	
WEST COAST																						
ALPENTAL, WASH ALPINE MEADOWS, CAL ALYESKA, ALASKA CRYSTAL MTN, WASH HEAVENLY VALLEY, CAL JUNE MOUNTAIN, CALIF KIRKWOOD MDWS, CAL MAMMOTH MTN, CALIF MT. RAINIER, WASH MT. HOOD MEADOWS SNOQUALMIE PASS I-90 SQUAW VALLEY, CALIF STEVENS PASS, WASH SUGAR BOWL, CALIF	76 406 94 96 89 19 103 7 4 86 59 176 187 43	172 617 153 318 99 22 164 37 4 239 113 340 513 79	1 3 1 1 2 2 1 2 2 4 1 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	27 21 30 30 23 18 21 2 24 30 24 21 26 20	5 2 21 2 7 2 4 24 15 4 34 24	6 16 13 12 11 8 16 1 1 16 5 14 7	0 0 0 0 0 1 0	76 357 76 96 89 19 101 7 0 81 32 174 187 43	0 49 18 0 0 2 0 4 5 27 2 0	8 1 0 1 6 0 0 0 0 0 0 2	28 1	1 0	9 9 5 2 9 0 18 0 0 0 19 1 0 0	10 70 60 10 5 43 7 0 8 0 29 42 13	1 4 3 0 5 0 0 0 0 0 0 1	0 0 2 0 5 0 1 0 0 0 0 1 0	74 367 86 95 89 16 81 7 0 51 46 100 0 24	33 106 78 37 27 1 35 0 0 20 28 5 0 7	0 49 2 3 1 6 0 0	1500+ 900 2300 1100 1200 1000 1500+ 400 150 1500 2800 600 0 700	5 0 0 0	

^{-- =} DATA INCOMPLETE OR MISSING

GE = GREATER THAN OR EQUAL TO + = ALSO OCCURRED ON OTHER DATES